ENERGY STAR®:
Why Rate Whole Building Energy Performance

Stuart Brodsky
National Program Manager
Commercial Property Markets
US EPA ENERGY STAR

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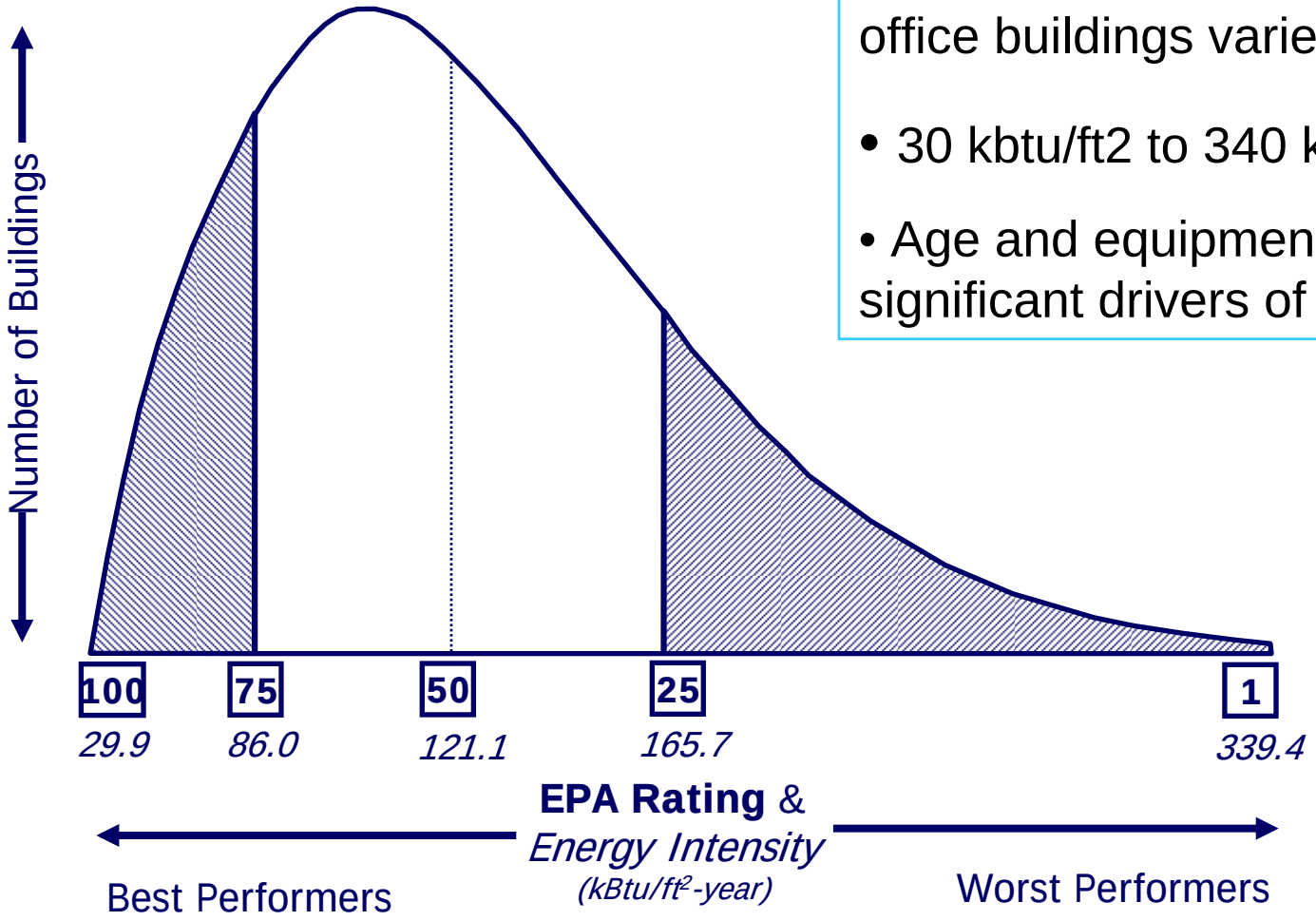
ENERGY STAR
Commercial Industry Branch

- Goals
  - Help businesses protect the environment through superior energy efficiency
  - Motivate organizations to develop a strategic approach to energy management
  - Convey information about energy performance in a simple metric that can be understood by all levels of the organization

Energy Performance Gap

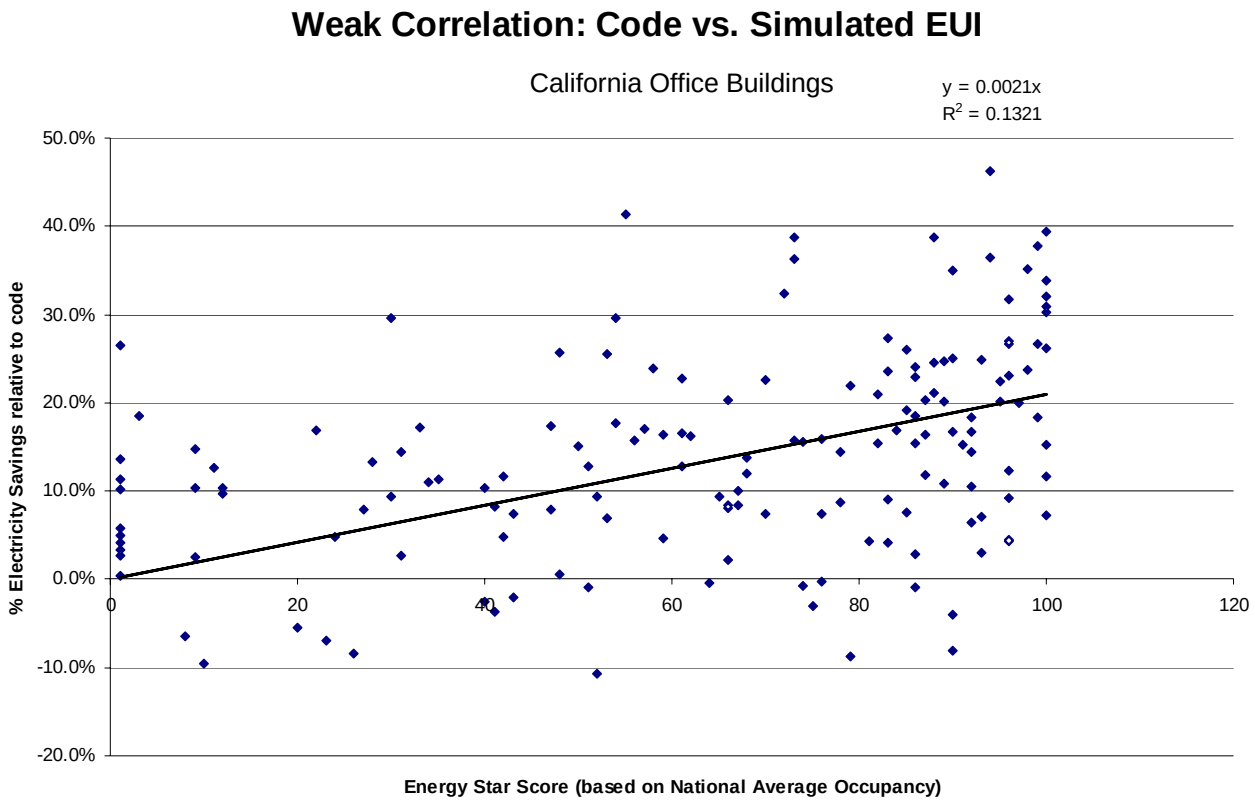
- Normalized EUI for existing office buildings varies widely
- 30 kbtu/ft2 to 340 kBtu/ft2
- Age and equipment not significant drivers of EUI



Energy Performance Gap

- Technology ≠ Performance
  - 60% of building fan systems oversized by 60% on average (EPA fan study)
  - Chillers oversized 50% to 200% (Lawrence Berkeley National Laboratory)
  - Improper installation, sizing and poor maintenance

Weak Correlation Between "Design to Exceed Code" and Actual Performance



Source: NBI, California Board for Energy Efficiency, EPA

Buildings 20% better than code can have an energy performance score ranging from 1-100.

Not sending right market signal.

Energy Performance Gap

- Code not measure of performance:
  - Does not account for critical design decisions:
    - site and orientation
    - fuel choice (electric or gas)
    - HVAC system type (chiller, DX, etc)
  - Does not address system integration or result in annual building energy use estimates
    - Plug loads, elevators, refrigeration, sizing
  - Does not require buildings meet a certain “fixed” energy budget.
    - ASHRAE appendix addresses some baseline issues

Simple Energy Metric

Fuel Efficiency

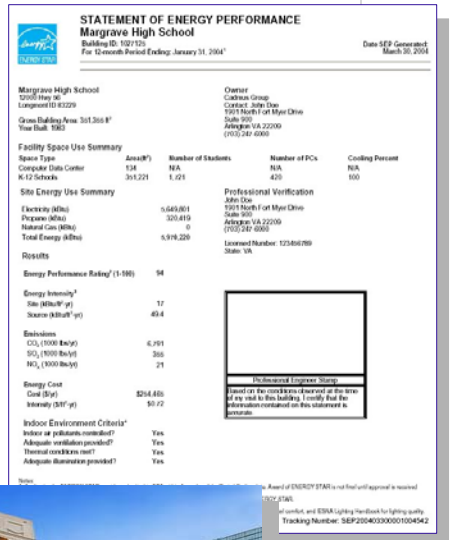
MPG

Is 10 MPG high or low for an automobile?

Is 80 kBtu/SF/YR high or low for a building?

Energy Performance

EPA Rating



Green and Energy Goals

LEED-EB and Portfolio Manager

Prerequisite – Rating of 60

EPA Rating	LEED-EB Points	EPA Rating	LEED-EB Points
63	1	83	6
67	2	87	7
71	3	91	8
75	4	95	9
79	5	99	10

ENERGY STAR Can Help

- ENERGY STAR's Guidelines for Energy Management:
  - •Organization-wide commitment to ***continuous improvement***
  - •"Best practices" from top ENERGY STAR partners.

ENERGY STAR Can Help

- **Management Tools:**
- **Establishing Organizational Commitment**
  - ✓ Partnership Letter
  - ✓ Communication resources
- **Measuring Energy Performance**
  - ✓ Objective, accessible, 3rd party rating system
- **Demonstrating Financial Value**
  - ✓ Calculators to estimate earnings/share, asset value, cost of delay
  - ✓ Analysis to confirm financial performance link
- **Recognition for Leadership**
  - ✓ ENERGY STAR Label, Awards

ENERGY STAR Can Help

- Technical Guidance to help operators target and achieve efficiency improvments:
  - Building Upgrade Manual for existing buildings
  - New Design Guidance
  - Operations and Maintenance Reports
  - Case Studies/Registry of Energy Star qualified buildings
  - Monthly networking meeting

ENERGY STAR Can Help

- www.energystar.gov
- Key word “business improvement”

- Brodsky.stuart@epa.gov